GLOSSARY OF WIRELESS TERMS

AD HOC NETWORK

An ad-hoc (or "spontaneous") network is a local area network or other small network, especially one with wireless or temporary plug-in connections, in which some of the network devices are part of the network only for the duration of a communications session or, in the case of mobile or portable devices, while in some close proximity to the rest of the network. In Latin, *ad hoc* literally means "for this," further meaning "for this purpose only," and thus usually temporary. The term has been applied to future office or home networks in which new devices can be quickly added, using, for example, the proposed Bluetooth technology in which devices communicate with the computer and perhaps other devices using wireless transmission.

One vendor offers an ad-hoc network technology that allows people to come to a conference room and, using infrared transmission or radio frequency (RF) wireless signals, join their notebook computers with other conferees to a local network with shared data and printing resources. Each user has a unique network address that is immediately recognized as part of the network. The technology would also include remote users and hybrid wireless/wire connections.

ANALOG

The original form of cellular service, launched in October 1983 in the U.S. (and earlier elsewhere). This service uses a waveform transmission instead of the zeros and ones that a digital system uses. It is more prone to interference, static, eavesdropping and cloning than digital systems, but is still deployed in many parts of the world where the advanced technology (and higher cost) of digital systems is not deemed necessary. **(Wireless Week)**

ANALOG SIGNAL

A signaling method that uses continuous changes in the amplitude or frequency of a radio transmission to convey information. **(FCC)**

ANSI (American National Standards Institute)

A U.S. standards group. **(Wireless Week)**

BACKBONE

A backbone is a larger transmission line that carries data gathered from smaller lines that interconnect with it.
1) At the local level, a backbone is a line or set of lines that local area networks connect to for a wide area network connection or within a local area network to span distances efficiently (for example, between buildings).
2) On the Internet or other wide area network, a backbone is a set of paths that local or regional networks connect to for long-distance interconnection. The connection points are known as network *nodes* or telecommunication data switching exchanges (DSEs). **(Whatis.com)**

BACKBONE NETWORK

The shared high-density portions of the state's telecommunications transmission facilities. It includes specially conditioned high-speed communication carrier lines, multiplexors, switches associated with such communication lines, and any equipment and software components necessary for management and control of the backbone network **(RCW 43.105.020 and 1999 c 285 s1 and 1999 c 80 1)**

BANDWIDTH

The capacity of a telecom line to carry signals. The necessary bandwidth is the amount of spectrum required to transmit the signal without distortion or loss of information. FCC rules require suppression of the signal outside the band to prevent interference. **(FCC)**

GLOSSARY OF WIRELESS TERMS

Bandwidth has a general meaning of how much information can be carried in a given time period (usually a second) over a wired or wireless communications link. For example, a link with a broad bandwidth - that is, a broadband link - is one that may be able to carry enough information to sustain the succession of images in a video presentation.

More technically, bandwidth is the width of the range of frequencies that an electronic signal occupies on a given transmission medium. Any digital or analog signal has a bandwidth. **(Mobile Computing)**

BASE STATION

1. A land station in the land mobile service. 2. In personal communication service, the common name for all the radio equipment located at one fixed location, and is used for serving one or several calls. **(Land Mobile Radio Market Analysis Report)**

BASE STATION CONTROLLER

The part of the wireless system's infrastructure that controls one or multiple cell sites' radio signals, thus reducing the load on the switch. It can be viewed as a form of distributed processing. **(Wireless Week)**

CHANNEL

A single unidirectional or bi-directional path for transmitting or receiving, or both, of electrical or electromagnetic signal. **(Land Mobile Radio Market Analysis Report)**

CONTROL CHANNEL

A logic channel carrying network information rather than the actual voice or data messages transmitted over the network. **(Wireless Week)**

CONVENTIONAL RADIO SYSTEM

Non-trunked, similar to a telephone party-line in that the user determines availability by listening for an open channel. **(Land Mobile Radio Market Analysis Report)**

DIGITAL

The newest form of wireless communications that takes all voice transmissions and converts them to computer language (zeros and ones, or "binary" language) and then reconstructs them into the original voice format at the other end. More secure than its original sibling, analog, and also relatively impervious to static or fading signals. **(Wireless Week)**

FREQUENCY MODULATION (FM)

A signaling method that varies the carrier frequency in proportion to the amplitude of the modulating signal. **(FCC)**

Interoperability.

An essential communication link within public safety and public service wireless communications systems which permits units from two or more different entities to interact with one another and to exchange information according to a prescribed method in order to achieve predictable results. **(SIEC Pre-Planning Group_**

1. The ability of systems, units, or forces to provide services to and accept services from other systems, units, or forces and to use the services so exchanged to enable them to operate effectively together. 2. The condition achieved among communications-electronics equipment when information or services can be exchanged directly and satisfactorily between them and/or their users. The degree of interoperability should be defined when referring to specific cases. **(Land Mobile Radio Market Analysis Report)**

GLOSSARY OF WIRELESS TERMS

Interoperability standard

1. A document that establishes engineering and technical requirements that are necessary to be employed in the design of systems, units, or forces and to use the services so exchanged to enable them to operate effectively together. 2. Established protocol that provide common interface. **(Land Mobile Radio Market Analysis Report)**

MOBILE

Permanently equipped with vehicles for transport **(Informationplease.com)**

MULTICAST

To transmit identical data simultaneously to a selected set of destinations in a network. **(Land Mobile Radio Market Analysis Report)**

MUTUAL AID CHANNEL

A national or regional channel that has been set aside for use only in mutual aid interoperability situations, usually with restrictions and guidelines governing usage. **(Land Mobile Radio Market Analysis Report)**

NARROWBAND CHANNELS

Refers to channels occupying less than 20 KHz **(Land Mobile Radio Market Analysis Report)**

NETWORK

Any connection of two or more computers that enables them to communicate. Networks may include transmission devices, servers, cables, routers and satellites. The phone network is the total infrastructure for transmitting phone messages. **(FCC)**

1.
    a. A chain of radio or television broadcasting stations linked by wire or microwave relay.
    b. A company that produces the programs for these stations.
2.
    a. A group or system of electric components and connecting circuitry designed to function in a specific manner.
    b. *Computer Science* A system of computers interconnected by telephone wires or other means in order to share information. Also called *net*[1]**. (Your Dictionary.com)**

NPSTC

Formed May 1, 1997, the National Public Safety Telecommunications Council (NPSTC)is a federation of associations representing public safety telecommunications. The purpose of NPSTC is to follow up on the recommendations of the Public Safety Wireless Advisory Committee (PSWAC). In addition, NPSTC acts as a resource and advocate for public safety telecommunications issues.

ON DEMAND

Immediately available when mission requires. Must be available under any circumstances **(Pre-Planning Group)**

OTAR (OVER-THE-AIR RE-KEYING)

The ability to update or modify encryption keys programmed in a mobile or portable radio over radio frequency. **(Land Mobile Radio Market Analysis Report)**

GLOSSARY OF WIRELESS TERMS

PROJECT-25

An APCO-sponsored project to ensure interoperability of 800 MHz trunked Public Safety communications systems produced by different manufacturers. **(Wireless Week)** Project-25 **(P-25**) is a set of standards that are used to ensure interoperability in other frequency bands as well. **(DBH)**

An open standards development initiative started in 1989 by APCO that focuses on digital, trucked LMR (Land Mobile Radio) systems employed by the public safety community. P-25 remains the foundation of the developing TIA/EIA 102 suite of standards. **(Land Mobile Radio Market Analysis Report)**

PERSONAL COMMUNICATIONS SERVICE (PCS)

Any of several types of wireless, voice and/or data communications systems, typically incorporating digital technology. PCS licenses are most often used to provide services similar to advanced cellular mobile or paging services. However, PCS can also be used to provide other wireless communications services, including services that allow people to place and receive communications while away from their home or office, as well as wireless communications to homes, office buildings and other fixed locations. **(FCC)**

PCS (personal communications services) is a wireless phone service somewhat similar to cellular telephone service but emphasizing personal service and extended mobility. It's sometimes referred to as digital cellular (although cellular systems can also be digital). Like cellular, PCS is for mobile users and requires a number of antennas to blanket an area of coverage. As a user moves around, the user's phone signal is picked up by the nearest antenna and then forwarded to a base station that connects to the wired network. The phone itself is slightly smaller than a cellular phone. According to Sprint, PCS is now available to 230 million people.

The "personal" in PCS distinguishes this service from cellular by emphasizing that, unlike cellular, which was designed for car phone use with transmitters emphazing coverage of highways and roads, PCS is designed for greater user mobility. It generally requires more cell transmitters for coverage, but has the advantage of fewer blind spots. Technically, cellular systems in the United States operate in the 824-849 megahertz (MHz) frequency bands; PCS operates in the1850-1990 MHz bands.

Several technologies are used for PCS in the United States, including Time Division Multiple Access (TDMA), Code Division Multiple Access (CDMA), and Global System for Mobile (GSM) communication. GSM is more commonly used in Europe and elsewhere **(Mobile Computing)**

PORTABLE

Easily carried or conveyed by hand **(Informationplease.com)**

PSAP (PUBLIC-SAFETY ANSWERING POINT)

The dispatch office that receives 911 calls from the public. A PSAP may be local fire or police department, an ambulance service or a regional office covering all services. **(Wireless Week)**

PSWN (PUBLIC SAFETY WIRELESS NETWORK)

PSWN is a jointly funded project by the United States Department of Justice and United States Treasury. The prime objective of PSWN is to help all jurisdictions of government to become fully interoperable.

PUBLIC SAFETY (SERVICES)-

For the purposes of the SIEC, Public Safety Services are services which protect and preserve life, health, property and natural resources that are provided by State, local or other

government entities or by non-governmental organizations that are authorized by a government entity to provide such services. . (Examples of these organizations may include and not be limited to: the Civil Air Patrol, local privately owned ambulance services, the Red Cross, and hospitals.) **(Pre-Planning Group)**

REAL TIME

There should be no noticeable delay between the time that information is sent and when it is received. **(Pre-Planning Group)**

REPEATER

Devices that receive a radio signal amplify it and re transmit it in a new direction. Used in wireless networks to extend the range of base station signals, thereby expanding coverage-within limits-more economically than by building additional base stations. Repeaters typically are used for buildings, tunnels or difficult terrain. **(Wireless Week)**

(RF) REPEATER: 1. An analog device that amplifies an input signal regardless of its nature, *i.e.,* analog or digital. 2. A device that amplifies, reshapes, retimes, or performs a combination of any of these functions on a digital input signal for retransmission. **(Land Mobile Radio Market Analysis Report)**

SATELLITE PHONE

A wireless phone that uses mobile satellite service to send voice and data. **(Wireless Week)**

SPECTRUM

The range of electromagnetic radio frequencies used in the transmission of sound, data and television. **(FCC)**

The useable radio frequencies in the electromagnetic distribution. Specific frequencies have been allocated to the public safety community.

High HF	25-29.99 MHz
Low VHF	30-50 MHz
High VHF	150-174 MHz
Low UHF	406.1-420/450-470 MHz
UHF TV Sharing	470-512 MHz
700 MHz	767-776/794-806 MHz
800 MHz	806-824/851-869 MHz

(Land Mobile Radio Market Analysis Report)

Electromagnetic radiation results from the physics of the electromagnetic field. **(Mobile Computing)**

SPECTRUM ALLOCATION

Federal government designation of a range of frequencies for a category of use or uses. For example, the FCC allocated the 1900 MHz band for personal communications services. Allocation, typically accomplished in years-long FCC proceedings, tracks new technology development. However, the FCC can shift existing allocations to accommodate changes in spectrum demand. As an example, some UHF television channels were recently reallocated to public safety. **(Wireless Week)**

SPECTRUM ASSIGNMENT

Federal government authorization for use of specific frequencies or frequency pairs within a given allocation, usually at stated a geographic location(s). Mobile communications authorizations are typically granted to private users, such as oil companies, or to common carriers, such as cellular and paging operators. Spectrum auctions and/or frequency

coordination processes, which consider potential interference to existing users, may apply. **(Wireless Week)**

SPECTRUM CAP
A limit to the allocated spectrum designated for a specific service. **(Wireless Week)**

SPURIOUS
1. Not genuine, authentic, or true; not from the claimed, pretended, or proper source; counterfeit.
2. *Biol.* (of two or more parts, plants, etc.) having a similar appearance but a different structure. **(Information Please)**

SYSTEM
Any organized assembly of resources and procedures united and regulated by interaction of interdependence to accomplish a set of specific functions. **(Land Mobile Radio Market Analysis Report)**

SYSTEM ARCHITECTURE
The design principles, physical structure, and functional organization of a land mobile radio system. Architectures may include single site, multi-site, simulcast, multicast, or voting receiver systems. **(Land Mobile Radio Market Analysis Report)**

SYSTEM REDUNDANCY
The measure or extent of the ability of a system, such as a computer, communications, data processing, or weapons system, to continue to function despite the existence of faults in its component subsystems or parts. **(Land Mobile Radio Market Analysis Report)**

TCP/IP (TRANSMISSION CONTROL PROTOCOL/INTERNET PROTOCOL)
Internet protocol suite developed by the U.S Department of Defense in the 1970s. TCP governs the exchange of sequential data. IP routes outgoing and recognizes incoming messages. **(Wireless Week)**

TDMA (TIME DIVISION MULTIPLE ACCESS)
a digital air interface technology used in cellular, PCS and ESMR networks. **(Wireless Week)**

TELECOMMUNICATIONS
The transmission of information by wire, radio, optical cable, electromagnetic, or other means. **(RCW 43.105.020 and 1999 c 285 s1 and 1999 c 80 1)**

TETRA (TERRESTRIAL TRUNKED RADIO)
An open digital trunked radio standard defined by the European Telecommunications Standardization Institute. **(Wireless Week)**

THIRD-GENERATION
A new standard that promises to offer increased capacity and high-speed data applications up to 2 megabits. It also will integrate pico-, micro- and macro cellular technology and allow global roaming. (Also known as '**3G**.') **(Wireless Week)**

TIA (TELECOMMUNICATIONS INDUSTRY ASSOCIATION)
A trade group representing manufacturers and suppliers of communications and information

technology products. TIA is a standards-developing organization accredited by the American National Standards Institute. **(Wireless Week)**

TRUNK

A single transmission channel between two points that are switching centers or nodes, or both. **(Land Mobile Radio Market Analysis Report)**

TRUNKING

Spectrum-efficient technology that establishes a queue to handle demand for voice or data channels. **(Wireless Week)**

ULTA HIGH FREQUENCY (UHF)

The UHF (ultrahigh frequency) range of the radio spectrum is the band extending from 300 MHz to 3 GHz. The wavelengths corresponding to these limit frequencies are 1 meter and 10 centimeters.

In the UHF band, signals from earth-based transmitters are not returned by the ionosphere to the surface; they always pass into space. Conversely, signals from space always penetrate the ionosphere and reach the surface. The global "short-wave" propagation familiar to users of lower frequencies is unknown at UHF. The troposphere can cause bending, ducting, and scattering at UHF, extending the range of communication significantly beyond the visual horizon. Auroral, meteor-scatter, and EME (earth-moon-earth, also called moon bounce) propagation are sometimes observed, but these modes do not offer reliable communication and are of interest primarily to amateur radio operators. In the upper portion of the band, waves can be focused or collimated by dish antennas of modest size.

The UHF band is extensively used for satellite communication and broadcasting, in cellular telephone and paging systems, and by third-generation (3G) wireless services. Because the frequency is high and the band is vast (a span of 2.7 gigahertz from the low end to the high end), wideband modulation and spread spectrum modes are practical. Channels and sub bands within the UHF portion of the radio spectrum are allocated by the International Telecommunication Union (ITU). **(Mobile Computing)**

VERY HIGH FREQUENCY (VHF)

The part of the radio spectrum from 30 to 300 megahertz, which includes TV Channels 2-13, the FM broadcast band and some marine, aviation and land mobile services. **(FCC)**

The VHF (very high frequency) range of the radio spectrum is the band extending from 30 MHz to 300 MHz. The wavelengths corresponding to these limit frequencies are 10 meters and 1 meter. **(Mobile Computing)**

Wi-Fi

Wi-Fi, also known as 802.11b, is a leading wireless networking standard and operates in the unlicensed spectrum at 2.4 GHz, which is the same frequency band used by cordless phones, microwave ovens and Bluetooth. It uses a direct sequence spread spectrum modulation scheme.
Wi-Fi is capable of transmitting data normally at distances up to about 300 feet at a data rate of 11 megabits per second. Because the spectrum is shared with other users, the rates fall as more users log on. Security is provided by the Wired Equivalent Privacy (WEP) specification, which is relatively easy to break. **(Wireless Week)**

GLOSSARY OF WIRELESS TERMS

Wi-Fi5
Wi-Fi5 refers to the 802.11a wireless networking standard, a technology that operates in the unlicensed 5 GHz band and can deliver data wirelessly at speeds up to 54 Mbps. Wi-Fi5 uses the same medium access controller as Wi-Fi but a different physical layer so it is not compatible. **(Wireless Week)**

WIN (WIRELESS INTELLIGENT NETWORK)
The architecture of the wireless switched network that allows carriers to provide enhanced and customized services for mobile telephones. **(Wireless Week)**

WIRELESS
Using the radio-frequency spectrum for transmitting and receiving voice, data and video signals for communications. **(Wireless Week)**